

**Michigan Department of Community Health
Bureau of Laboratories
Division of Chemistry and Toxicology, Trace Metals Section**

Dust Wipe Sampling for Lead

Surface wipe samples for settled dust shall be collected from floors (both carpeted and uncarpeted), window troughs, and window sills.

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1. Wipe Sampling Materials and Supplies:

- a. All wipe samples of settled dust must be collected using wipe material that meets ASTM Designation: E 1792. The required wipe for the MDCH laboratory is the individually-packaged “Ghost Wipe”, a 15cm x 15cm disposable wipe. Check the wipe package to ensure that the wipe is not expired.
- b. Powderless plastic gloves. Disposable gloves are required to prevent cross-sample contamination from hands.
- c. 50 mL polypropylene flat-bottom tubes with caps. Plastic sealable bags are not acceptable for dust sampling. Containers should be pre-labeled with site-specific identifiers (i.e., address, collection date).
- d. Dust sample collection form: Environmental Lead Test Requisition, DCH-0558. This form can be obtained from the MDCH/Trace Metals Section and is required to accompany dust wipe samples for analysis.
- e. Template options:
 - i) Hard, smooth, reusable templates made of aluminum or reusable plastic or disposable cardboard or disposable plastic. Templates should be 1 ft x 1 ft (1 ft²) or of otherwise accurately known dimensions, between 0.1 ft² and 2 ft². Reusable templates should be wiped with a clean disposable cloth before and after each use. Disposable templates are not used for more than a single surface. Templates are not used for windows due to the variability in size and shape (use masking tape instead).
 - ii) Masking tape. Tape is used to define the sampling areas when a template is not practical. It is required for wiping window sills and troughs in order to avoid contact with window jambs and channel edges. It is also used for adhering templates to the surface to be sampled.
- f. Container labels or permanent marker
- g. Trash bag or other receptacle

- h. Measuring tape
- i. Disposable shoe coverings (optional)
- j. Rack, bag or box to carry tubes and other supplies/materials (optional)

2. Wipe Sampling Procedure:

- a. Don disposable gloves. If gloves are not stored in a sealed box, discard the first glove. Use new gloves for each sample collected.

- b. Outline wipe area:

Floors: For wide, flat areas, use a sampling template. The template should lie flat on the surface. Identify the area to be wiped. If no template is available, apply masking tape to perimeter of the wipe area to form an area of one square foot (12 in. by 12 in.). The tape should be positioned in a straight line and corners should be perpendicular.

Window sills and other rectangular surfaces: Identify the area to be wiped, which should be at least 0.1 ft² in size (approximately 2 in. by 8 in.). Do not touch the wipe area. Mark the area with tape and measure the area to be sampled to within one-eighth of an inch.

When using tape, do not cross the boundary tape or floor markings, but be sure to wipe the entire sampling area. It is permissible to touch the tape with the wipe, but not the surface beyond the tape.

Do not walk on or touch surfaces to be sampled (the wipe areas).

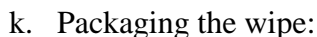
- c. Inspect the wipe package. If it is contaminated with dust, clean the package with a cloth. Discard any wipes that are dried out or visibly contaminated.
- d. Partially unscrew the cap on the tube to be sure that it can be opened.
- e. Place the wipe at one corner of the wipe surface with wipe fully opened and flat.
- f. First wipe pass (side-to-side): With the fingers together, grasp the wipe between the thumb and the palm. Wipe using the pressure and length of the fingers and the palm of the hand. Press down firmly, but not excessively. Do not touch the surface with the thumb. If the wipe area is a square, wipe side-to-side with as many "S" or "Z" like motions as are necessary to completely cover the entire wipe area. Exerting excessive pressure on the wipe will cause it to curl. Exerting too little pressure will result in poor dust collection. Always press the front edge of the wipe forward. Attempt to remove all visible dust from the wipe area.
- g. Second wipe pass (top-to-bottom): Fold the wipe in half with the contaminated side facing inward. The wipe can be straightened out by laying it on the wipe area, contaminated side up, and folding it over. Do not touch the contaminated side of the wipe with the hand or fingers. Do not shake the wipe in an attempt to straighten it out, as dust may be lost during shaking. Once folded, place wipe in the top corner of the wipe area and press down firmly with the fingers and the palm. Repeat wiping the area with "S" or

- h. Third pass (perimeter): Fold the wipe in half again with the contaminated side facing inward. Once folded, place wipe in the top corner of the wipe area and press down firmly with the fingers. Wipe around the perimeter of the area, staying inside the border, and focusing on collecting dust from the corners.



- j. Window troughs (wells):

Third pass



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l. Labeling the container:

Label the tube with at least two identifiers, using either a pre-printed label or permanent marker. The identifiers include a sample number, site identifier, (i.e., street address), location where the sample was taken (i.e., room number and floor/sill/trough), dimensions of the wipe area, and date of collection. Identifiers on the sample should match the sample number and descriptions on the Environmental Lead Test Requisition form.

m. Area Measurement:

After sampling, measure the surface area wiped to the nearest eighth of an inch using a tape measure or a ruler. The size of the area wiped must be at least 0.10 ft² in order to obtain an adequate limit of quantification. No more than 2 square feet should be wiped with the sample wipe. Record specific measurements or square inches for each area wiped on the test requisition form. For floor sampling, 1.0 ft² is the standard area.

n. Trash Disposal:

After sampling, remove the masking tape and throw it away in a trash bag. Remove gloves; put all contaminated gloves and sampling debris into a trash bag. Remove the trash bag when leaving the dwelling. Do not throw away gloves and sampling debris inside the dwelling unit.

3. Blank Preparation:

Collect one blank wipe for every 20 field samples. The field blank is handled the same as field samples except that no surface is wiped. The purpose of the field blank is to ensure quality sampling techniques and detect sampling material contamination. To collect a blank wipe, remove a wipe from the wrapper with a new glove, shake it wipe open, refold as it occurs during the actual sampling procedure, and then insert it into empty tube without touching any surface or other object.

Contamination of samples can be minimized by frequent changing of gloves, the use of shoe covers and regular cleaning of sampling equipment.

4. Assessor Decontamination:

When conducting sampling, the assessor, should avoid hand-to-mouth contact (i.e., smoking, eating, drinking, and applying cosmetics) and should wash hands with running water immediately after sampling. The assessor should ask to use the resident's bathroom for this purpose. Wet wipes may be used if running water or the bathroom is not available.

5. Form Completion and Fees:

Complete the Environmental Lead Sampling Requisition. Record any field notes regarding type of wipe used, lot number, collection protocol, etc. on the requisition or a separate piece of paper. Chain of custody requirements should be followed, if applicable.

Fees: County certified lead assessors are to submit a check payable to the State of Michigan and a list of clients with each specimen. Attach the check to the Environmental Lead Sampling Requisition. Interested parties may establish a billing procedure for testing services by contacting the laboratory at 517.335.9490. Public health-related samples, which are environmental lead specimens for lead-poisoned clients, are exempt from a fee. Individuals wishing to submit samples should contact their local health department to arrange billing, submittal, and payment. For more information regarding fees, contact the MDCH lab at 517.335.9490.

6. Quality Assurance/Quality Control:

If a field blank is greater than or equal to 20 µg, the field blank is considered contaminated. Since sample results are not corrected for contamination based on the field blank or any other analytical blank, the laboratory recommends recollection of the site when field blanks show contamination.

Any questions or problems concerning environmental sampling results should be directed to:

MDCH Trace Metals Laboratory
3350 N. Martin Luther King Blvd.
Lansing, MI 48909
Phone: (517) 335-8244
Fax: (517) 335-9776
Email: knottnerusm@michigan.gov or fisherk@michigan.gov

Questions on sampling procedures can be directed to the MDCH Healthy Homes Section at 517.335.9390.

7. Lead Hazard Identification:

In accordance with Michigan administrative rule R325.99402 and the U.S. Environmental Protection Agency 40 CFR Part 745.227, the following are the levels at which a dust sample is deemed a lead paint hazard during a lead risk assessment or environmental investigation. For clearance examination testing for lead abatement projects, if dust wipe results are under these levels, the dust testing portion of a clearance examination passes.

Hazard Determination and Failing Clearance Levels - at or above:

40 $\mu\text{g}/\text{ft}^2$, floors
250 $\mu\text{g}/\text{ft}^2$, interior window sills
400 $\mu\text{g}/\text{ft}^2$, interior window troughs

8. References:

- a. ASTM E 1728-03. Standard practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Lead Determination. Copies are available (for a fee) on the ASTM website at: <http://www.astm.org/Standards/E1728.htm>.
- b. *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*, U.S. Department of Housing and Urban Development, June, 1995. Copies of the Guidelines are available (for free) on the HUD website at: http://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes/lbp/hudguidelines.
- c. ASTM E1792. Standard Specification for Wipe Sampling Materials for Lead in Surface Dust. Copies are available (for a fee) on the ASTM website at: <http://www.astm.org/Standards/E1792.htm>.